

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

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LENORE N. OHYE
ACTING DEPUTY DIRECTOR

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

August 25, 2010
Honolulu, Oahu

Brent Cullinan
APPLICATION FOR A WATER USE PERMIT
Brent's Well (Well No. 3104-03), TMK 6-5-002:024, WUP No. 896
Future (Agricultural, Irrigation, Domestic) Use for 0.032 mgd
Wahiawa Ground Water Management Area, Oahu

APPLICANT:

Brent Cullinan
816 Gulick Avenue
Honolulu, HI 96819

LANDOWNER:

David Onerheim
816 Gulick Avenue
Honolulu, HI 96819

SUMMARY OF REQUEST:

The applicant requests that the Commission approve a water use permit for an allocation of 0.032 million gallons per day (mgd) of potable ground water from a new well to supply 9 acres of agriculture, irrigation and domestic use.

LOCATION MAP: See Exhibit 1

BACKGROUND:

On June 2, 2010, the Commission on Water Resource Management (Commission) received a completed water use permit application from Brent Cullinan. Additional information regarding the source, use, and notification is provided in Attachment A.

ANALYSIS/ISSUES:

Section 174C-49(a) of the State Water Code establishes seven (7) criteria that must be met to obtain a water use permit. An analysis of the proposed permit in relation to these criteria follows:

(1) Water availability

Through the Hawaii Water Plan, the Commission has adopted 23 mgd as the sustainable yield for the **Wahiawa** Aquifer System Area. Individual existing water use permits in this aquifer system are shown in Exhibit 2. A summary of the current ground water conditions in the aquifer is provided in Table 1:

Table 1. Wahiawa Aquifer System Area

<u>ITEM</u>	Wahiawa Aquifer System Area (mgd)
Sustainable Yield	23
Less: Other Existing Water Use Permits (shown in Exhibit 2)	22.398
Reservation to DHHL	0
Subtotal (Current Available Allocation)	0.602
Less: Other Completed Applications (shown in Exhibit 3)	0
Less: This Application	0.032
Subtotal (Potential Available Allocation/Allocation Deficit)	0.570

Therefore, there is adequate water to accommodate the requested allocation.

(2) Reasonable-beneficial

Section 174C-3 HRS defines "reasonable-beneficial use" is

"...the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest".

I. Purpose of Use

The applicant is requesting the use of ground water for irrigation of various crops, a reservoir which may be stocked with aquaculture, a farm building, livestock production, and a single family home. The Declaration of Policy section, §174C-2(c) HRS, states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for various purposes including domestic, irrigation and other agricultural uses.

II. Quantity Justification

The applicant is requesting a total of 0.032 mgd for various uses, described below:

1. Domestic use (1 unit * 400 gpd/unit = 400 gallons per day)

The Water System Standards of the State of Hawaii uses 500 gpd/acre as a planning estimate for single family homes on Oahu. Therefore, the requested amount appears reasonable.

2. Livestock (goats) (30 goats * 10 gpd/goat = 300 gallons per day)

The draft document entitled "A Literature Compilation of Water Usage For Hawaii" by the Water Resources Research Center indicates that demands for goats on the mainland may be on the order of 2 gpd/acre. Further, a recent Water Use Permit issued to Alii Turf farms uses 2.5 gpd/pig. Therefore staff recommends the duty to be reduced to 2.5 gpd/goat, or a total of 30 goats * 2.5 gpd/goat = 75 gpd.

3. Farm building (1 unit * 400 gpd/unit = 400 gallons per day)

The farm building will have various uses, including the washing and packaging of fruit, a restroom for employees, eye wash, and a vehicle washdown station. These uses appear to be more along the lines of a light industrial use than domestic use. However, in lieu of a comparable duty, staff considers 400 gallons per day for the facility to be very conservative and therefore a reasonable request.

4. Various crops (9 acres * 2,900 gpd/acre = 26,000 gallons per day)

The applicant has listed citrus, mango, avocado and coconut as crops grown.

Since its presentation to the Commission in April 2008, the Commission staff has used an ArcGIS based numerical simulation model, created in conjunction with the College of Tropical Agriculture and Human Resources (CTAHR), from the University of Hawaii, as a *guideline* to help review irrigation requirements for proposed water use permit applications. Most applications do not have the level of irrigation analysis as provided by this application. Nevertheless, it is useful to use the Irrigation Water Requirement Estimation Decision Support System (IWREDSS) model for comparative purposes.

Based on this model, staff estimates the following:

Citrus = 2,805 gpd/acre * 2.25 acres = 6,311 gpd
Mango = 2,862 gpd/acre * 2.25 acres = 6,439 gpd
Avocado = 2,907 gpd/acre * 2.25 acres = 6,540 gpd
Coconut = 2,983 gpd/acre * 2.25 acres = 6,711 gpd

The total use is the sum of these, or 26,000 gpd. Therefore, the requested amount appears reasonable.

5. Reservoir evaporation (1 reservoir * 1,666 gallons per day = 1,666 gallons per day)

The approximate reservoir dimensions are 220' x 180' for a total of 39,600 square feet of surface area. The Pan Evaporation report R-74 (1985) for the State of Hawaii indicates that for station 820.20, PRI Wahiawa, the annual mean evaporation is 72.90 inches per year, or 6.075 feet/year. 39,600 square feet * 6.075 feet / year = 4,930 gallons / day. Therefore the requested amount appears reasonable.

6. Initial reservoir filling (1 reservoir * 2,739 gallons per day = 2,739 gallons per day)

The initial reservoir filling will be a one time event. Further, with a 45 gpm pump, the applicant will not be able to pump more than approximately 64,000 gallons per day. Therefore staff is not recommending an allocation to be granted for this initial filling.

Based on the justifications above, staff is recommending a normal average use total of 0.029 mgd, based on the summary below.

Item	Requested amount (gpd)	Recommended amount (gpd)
1. Domestic	400	400
2. Livestock	300	75
3. Farm building	400	400
4. Crops	26,000	26,000
5. Reservoir evaporation	1,666	1,666
6. Initial reservoir filling	2,739	0
Total	31,505	28,541

III. Efficiency of Use

The primary use is irrigation of crops, and drip irrigation is a method of irrigation that minimizes inefficiencies. An enclosed reservoir would minimize evaporation but is not feasible. Therefore, staff believes the uses described to be efficient uses of water.

IV. Analysis of Practical Alternatives

The applicant has identified **no** alternatives to the proposed use of ground water. An analysis of each of the alternatives is as follows:

1. Municipal sources – not available

2. Wastewater – R2 water was available when Dole maintained the systems, but is currently unavailable
3. Ditch System – the adjacent irrigation ditch is not currently able to provide adequate water for the applicant's needs.
4. Desalinization – too expensive to be feasible
5. Surface Water – not available

(3) Interference with other existing legal uses

There are no other wells currently in use within 1 mile of the proposed source well. Because the pump capacity will be 45 gpm, no pump test will be required.

(4) Public interest

Public interest is defined under §174C-2 - Declaration of policy, as follows:

“(c) The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest.”

The uses described in this application are, as defined above, in the public interest. Additionally, there have been no comments / objections to the application.

Therefore, this application meets the public interest.

(5) State & county general plans and land use designations

The proposed uses are in the State Agricultural District, and the county zoning is Ag-1. Therefore, the proposed use is consistent with these land use designations.

Normal agency review includes:

- 1) the State's Department of Land and Natural Resources (DLNR) and its State Parks, Aquatic Resources, Historic Preservation, and Land Divisions; the Department of Health (DOH) with its Clean Water, Safe Drinking Water, and Wastewater Branches; the Department of Hawaiian Home Lands (DDHL), and Land Use Commission (LUC); and the Office of Hawaiian Affairs (OHA).

- 2) the Office of the Mayor, Department of Planning and Permitting, and the Board of Water Supply;

No comments or objections have been made through this review. These proposed uses are consistent with the state and county general plans and land use designations.

Therefore, this application meets the state & county general plans and land use designations.

(6) County land use plans and policies

Again normal County review includes Office of the Mayor, Department of Planning and Permitting, and the Board of Water Supply. No comments or objections have been made.

Therefore, this application meets the county land use plans and policies.

(7) Interference with Hawaiian home lands rights

All permits are subject to the prior rights of Hawaiian home lands. The Department of Hawaiian Home Lands (DHHL) and the Office of Hawaiian Affairs have reviewed this application and made no comments or objections. Further, standard water use permit conditions 3.g., 6., and 9.f. notify all water use permittees that their permits are subject to and cannot interfere with Hawaiian home land rights.

Therefore, this application will not interfere with Hawaiian home lands rights.

(8) Other issues

I. Chapter 343 – Environmental Assessment (EA) Compliance

EA Triggers

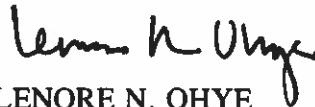
In accordance with §HRS 343-5(a), the applicant's proposed action does not trigger the need for an EA. None of the following triggers are applicable: (1) use of state land; (2) use of county land; (3) use of state funds; (4) use of county funds; (5) use of conservation district lands; (6) use with shoreline setback area; (7) use of historic site designated on the National register; (8) use of historic site designated on the Hawaii register; (9) use of land in the Waikiki Special District; (10) amendment to county general plan which results in designations other than agriculture, conservation or preservation not initiated by the county; (11) proposes any reclassification of conservation land by LUC; (12) relationship to the construction/modification of helicopter facilities that may affect conservation district lands/a shoreline setback area/a historic site; (13) proposal to build (a) wastewater treatment units (except IWS or WTU serving <50 SFR dwellings or the equivalent, (b) waste-to-energy facility (c) landfill, (d) oil refinery, (e) power generating facility.

RECOMMENDATION:

Staff recommends that the Commission approve the issuance of water use permit no. 896 to Brent Cullinan for the reasonable and beneficial use of 0.029 million gallons per day of Potable water for Agricultural, Irrigation, Domestic from the Brent's Well (Well No. 3104-03), subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

1. Should an alternate permanent source of water be found for this use, then the Commission reserves the right to revoke this permit, after a hearing.
2. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

Respectfully submitted,



LENORE N. OHYE
Acting Deputy Director

Attachment(s): A (Water Use Permit Detailed Information)
 B (Water Use Permit Standard Conditions)

Exhibit(s): 1 (Location Map)
 2 (Existing Water Use Permits and 12-Month Moving Average Withdrawal)

APPROVED FOR SUBMITTAL:



LAURA H. THIELEN
Chairperson

WATER USE PERMIT DETAILED INFORMATION**Source Information****AQUIFER:****Wahiawa System, Central Sector, Oahu**

Sustainable Yield:	23 mgd
Existing Water Use Permits:	22.398 mgd
Available Allocation:	0.602 mgd
Total other pending applications:	0 mgd
This application:	0.032 mgd

Use Information

Quantity Requested:	0.032 gallons per day.
Future Type of Water Use:	Agricultural, Irrigation, Domestic
Place of Water Use:	TMK: 6-5-002:024

Wahiawa Aquifer System**Current 12-Month Moving Average Withdrawal (See Exhibit 2): 4.965 mgd (as of 12/06)****Nearby Surrounding Wells and Other Registered Ground Water Use**

There is one other well within a mile of the well (see Exhibit 1). This well (3205-01) is currently not in use. There are also two proposed wells within this mile radius, but neither has been constructed.

Public Notice

In accordance with HAR §13-171-17, a public notice was published in the Honolulu Advertiser on July 16, 2010 and July 23, 2010 and a copy of the notice was sent to the Office of the Mayor. Copies of the completed application were sent to the Board of Water Supply, Department of Planning and Permitting, Department of Health, Department of Hawaiian Home Lands, Office of Hawaiian Affairs, the various divisions within the Department of Land and Natural Resources, and other interested parties for comments. Written comments and objections to the proposed permit were to be submitted to the Commission by August 6, 2010.

STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)
2. The right to use ground water is a shared use right.
3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
 - a. Can be accommodated with the available water source;
 - b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
 - c. Will not interfere with any existing legal use of water;
 - d. Is consistent with the public interest;
 - e. Is consistent with State and County general plans and land use designations;
 - f. Is consistent with County land use plans and policies; and
 - g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).
4. The ground water use here must not interfere with surface or other ground water rights or reservations.
5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
 - a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
 - b. The interim or permanent instream flow standard, as applicable, must be amended.
6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.
7. The water use permit application and submittal, as amended, approved by the Commission at its August 25, 2010 meeting are incorporated into this permit by reference.
8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.
9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
 - a. protect the water sources (quantity or quality);
 - b. meet other legal obligations including other correlative rights;
 - c. insure adequate conservation measures;

- d. require efficiency of water uses;
- e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
- f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
- g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

- 10. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).
- 11. This permit shall be subject to the Commission's periodic review of the **Wahiawa** Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the **Wahiawa** Aquifer System, or relevant modified aquifer(s), is reduced.
- 12. A permit may be transferred, in whole or in part, from the permittee to another, if:
 - a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
 - b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

- 13. The use(s) authorized by law and by this permit do not constitute ownership rights.
- 14. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.
- 15. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

16. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the **Wahiawa** Ground Water Management Area.
17. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.
18. Special conditions in the attached cover transmittal letter are incorporated herein by reference.
19. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

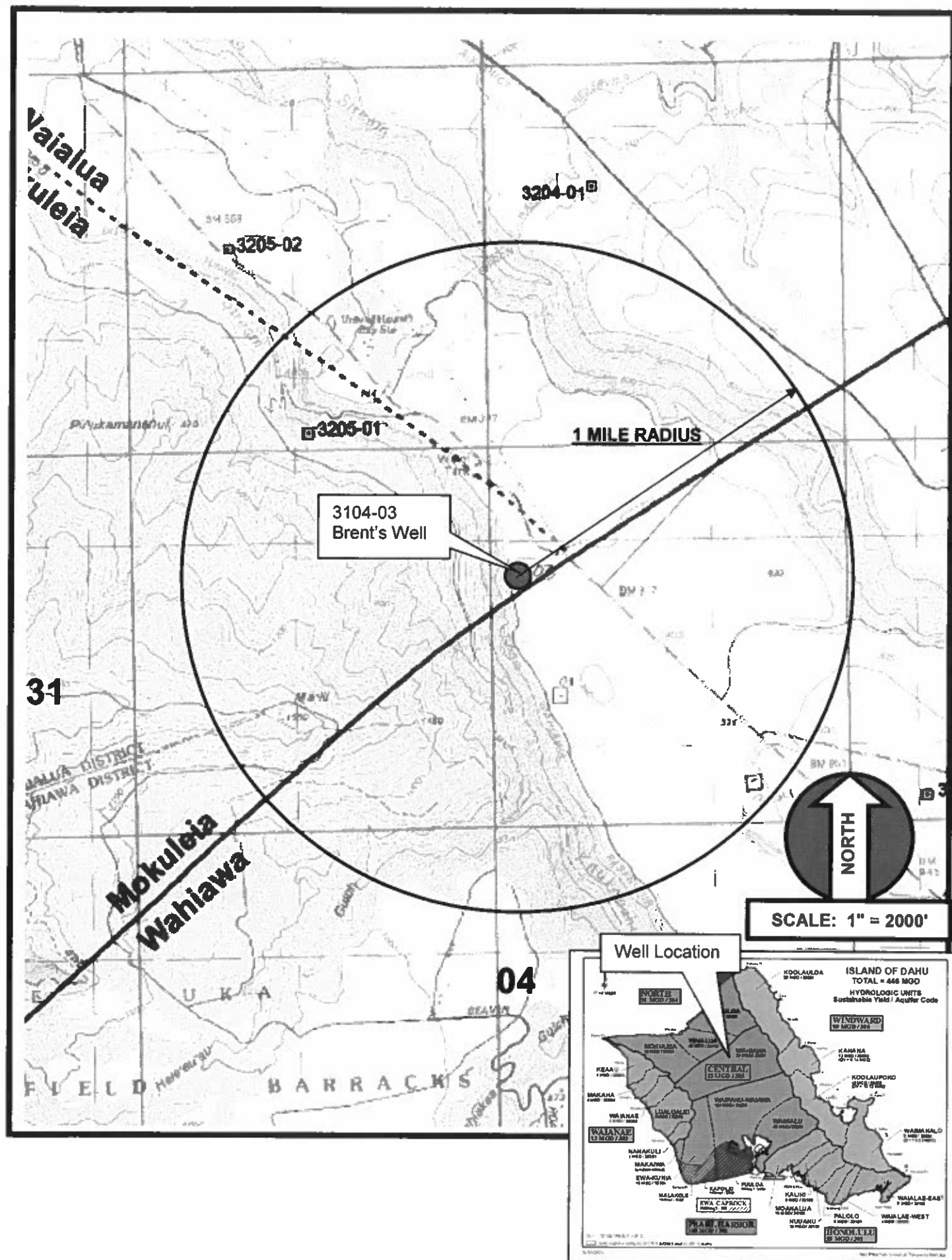


EXHIBIT 1: LOCATION MAP

Aquifer System Area Water Use Permit Index (total)

ISLAND OF OAHU

Aquifer System Ground Water Management Area: **WAHIAWA**

Sustainable Yield = 23

WUP No	Approved	Applicant	Well No.	Well Name	WUP (mgd)	12-MAY (mgd)
032	6/2/1993	WAIALUA SUGAR	3102-02	PUMP 24	2.580	no reporting
138	7/19/1995	WAIALUA SUGAR	3203-02	PUMP 26	1.720	no reporting
433	6/5/1996	U.S. NAVY	3100-02	WAHIAWA DEEP	0.208	0.191 (7/09)
464	5/14/1997	U.S. ARMY	2901-02	SCHOFIELD SHAFT	5.648	no reporting
464	5/14/1997	U.S. ARMY	2901-03	SCHOFIELD SHAFT		
464	5/14/1997	U.S. ARMY	2901-04	SCHOFIELD SHAFT		
464	5/14/1997	U.S. ARMY	2901-10	SCHOFIELD SHAFT		
598	5/17/1989	HONOLULU BWS	2902-01	WAHIAWA II		
598	5/17/1989	HONOLULU BWS	2902-02	WAHIAWA II	1.000	1.625 (1/07)
717	11/20/1987	GALBRAITH ESTATE	3103-01	DEL MONTE #5	2.000	0.000 (3/07)
765	7/12/2006	Sandwich Isles Communications	2801-03	SIC-01	0.100	no reporting
826	2/21/2008	Kelena Farms LLC	3203-01	WScCo. Pump 25	1.442	no reporting
842	5/17/1989	HONOLULU BWS	2901-08	WAHIAWA I	3.270	1.275 (12/06)
842	5/17/1989	HONOLULU BWS	2901-09	WAHIAWA I		
842	5/17/1989	HONOLULU BWS	2901-11	WAHIAWA I		
870	6/20/2001	James Campbell Co, LLC	2803-05	Del Monte 3	3.960	0.006 (6/09)
870	6/20/2001	James Campbell Co, LLC	2803-07	Del Monte 4		
876	2/17/2010	Alii Turf Co., LLC	3001-01	Alii Turf	0.115	no reporting
879	2/17/2010	Hawaiian Earth Products	3104-02	HEP-1	0.355	no reporting
Summary for WAHIAWA (19 detail records)					Totalling	22.398
					Available	0.602

Aquifer Code	30501	Aquifer System	WAHIAWA	SY MGD:	0	Beginning:	1/1/2000	Ending:	12/31/2006	Saltwater?	<input type="checkbox"/>	Tunnel?	<input type="checkbox"/>	Caprock?	<input type="checkbox"/>	Compute 12-Month Moving Average
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12 Month Moving Average

